

SERVICE MANUAL

FISHER

CA-110

Integrated
Stereo Amplifier
(EUROPE)



The first name in high fidelity

CONTENTS

Specifications	2
Functional Block Diagram	3
Power Amp IC STK-461 Equivalent Circuit	3
Exploded View of Cabinet and Chassis	4
Parts List	5,6,7
Printed Circuit Board (Bottom View)	7,8,9,10
Point to Point Wiring Diagram	11,12
Schematic Diagram	13,14

SPECIFICATIONS

POWER AMPLIFIER SECTION

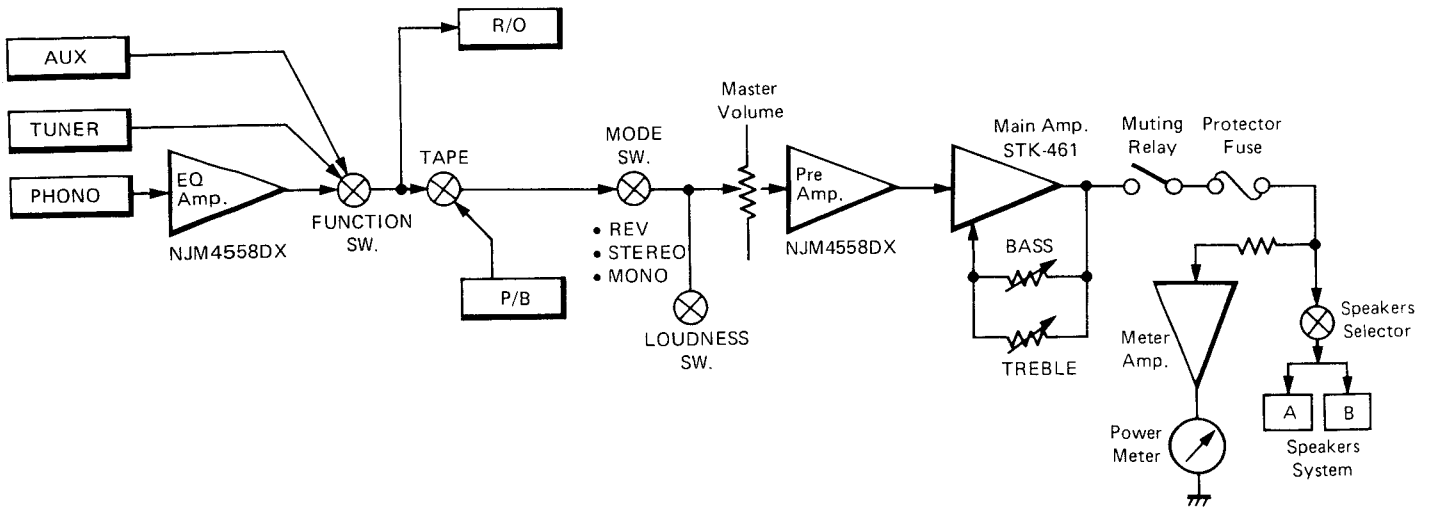
Sine Wave Power		Tuner	150 mV/50 kohms
at 1000 Hz (4 ohms)	2 x 22 W	Auxiliary	150 mV/50 kohms
at 1000 Hz (8 ohms)	2 x 22 W	S/N Ratio (DIN)	
20 to 20,000 Hz (4 ohms)	2 x 20 W	Phono	60 dB
20 to 20,000 Hz (8 ohms)	2 x 20 W	Tape/Tuner/Aux	90 dB
Music Power (4 ohms)	2 x 30 W	Treble Control (10 kHz)	±10 dB
(8 ohms)	2 x 26 W	Bass Control (100 Hz)	±10 dB
THD (rated output)	0.07 %	Loudness Control (100 Hz/10 kHz)	+8 dB/+4 dB
IM (rated output)	0.07 %	Power Requirements	AC 110/220 V, 50/60 Hz
Power Bandwidth	20 – 35,000 Hz	Power Consumption	110 W

PRE AMPLIFIER SECTION

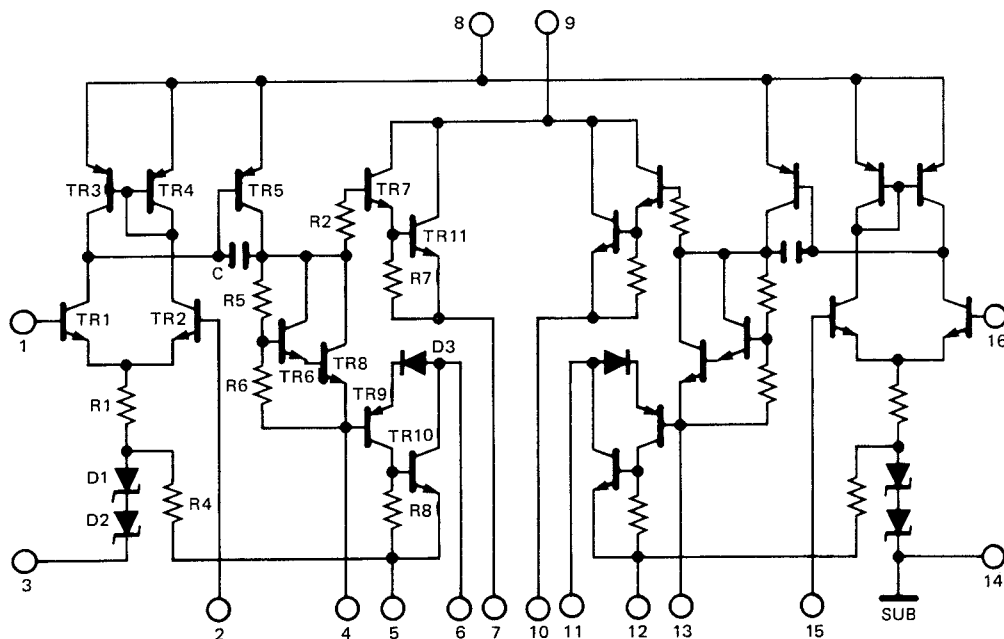
Frequency Response	20 Hz – 20 kHz, ±0.5 dB	Dimensions (W x D x H)	400 x 220 x 125 mm
Damping Factor (8 ohms)	>20	Weight (approx.)	5.0 kg
Input Sensitivity and Impedance			
Phono	2.5 mV/50 kohms		
Tape Monitor	150 mV/50 kohms		

—Specifications are subject to change without notice.—

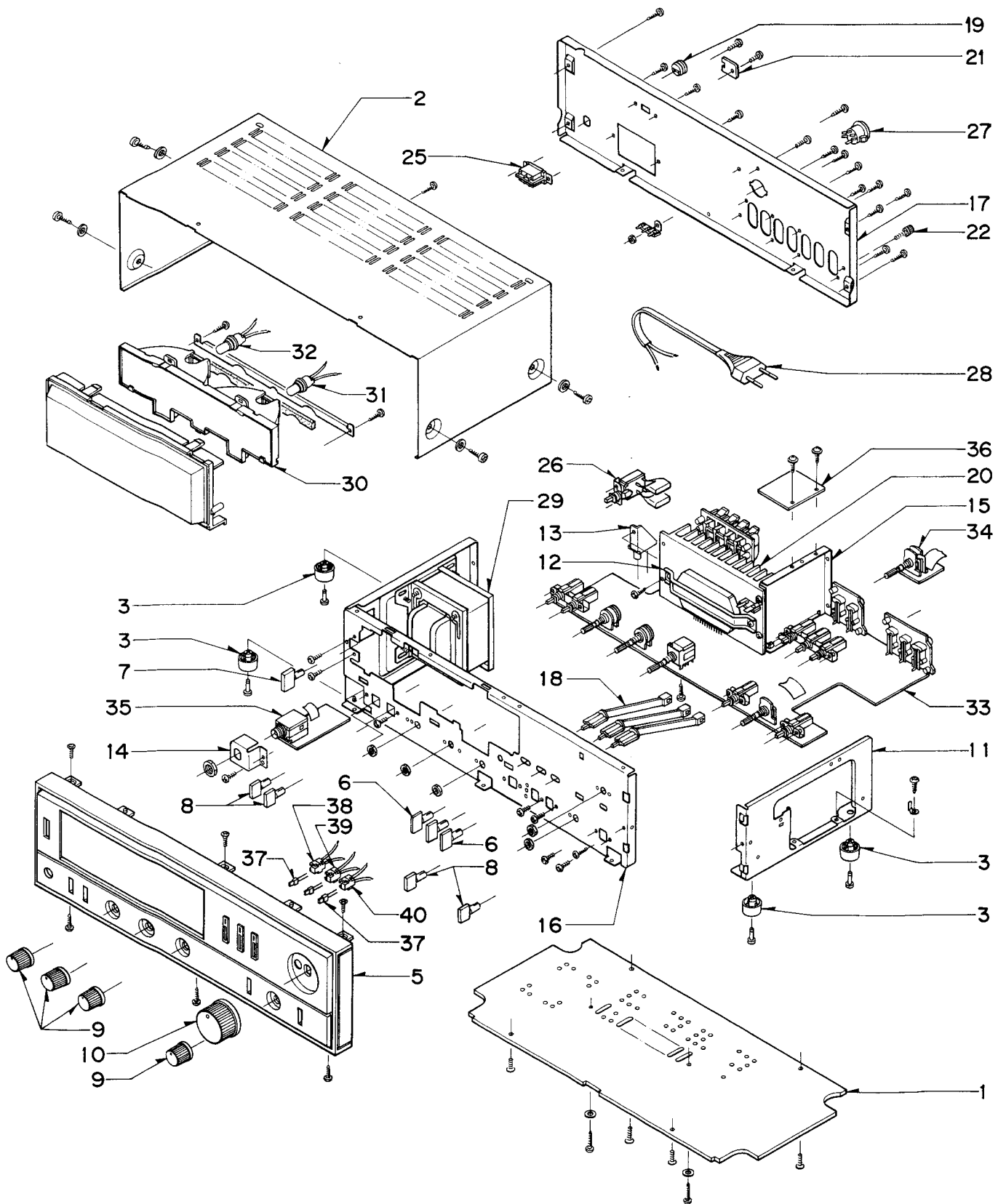
FUNCTIONAL BLOCK DIAGRAM



POWER AMP IC STK-461 EQUIVALENT CIRCUIT



EXPLODED VIEW OF CABINET AND CHASSIS



PARTS LIST

PACKING PARTS LIST

Ref. No.	Parts Number	Description
	131 6 1139 85605	Box Corrugate-EXP
	131 6 2119 02131	Bag Polyethylene-EXP
	131 6 3009 30371	Pad (Right)
	131 6 3009 30372	Pad (Left)

ACCESSORIES PARTS LIST

Ref. No.	Parts Number	Description
	131 6 4119 84802	Explanatory Booklet
	131 6 4519 15700	Guarantee Certificate

CABINET PARTS LIST

Ref. No.	Parts Number	Description
1	131 2 1105 25300	Plate Bottom
2	131 2 1410 23800	Cover
3	131 2 1801 14600	Leg

APPEARANCE PARTS LIST

Ref. No.	Parts Number	Description
5	131 0 1016 86602	Panel Decorate Assy
	131 2 1202 17704	Escutcheon Dial
	131 2 1203 50400	Panel Control
	131 2 6113 37900	Shelter
	131 2 6113 38900	Shelter (Push Knob)
6	131 2 1601 64400	Knob (Function Switch)
7	131 2 1601 64500	Knob (Power Switch)
8	131 2 1601 64600	Knob (Push)
9	131 2 1601 64700	Knob (Tone, Balance)
10	131 2 1601 64800	Knob (Volume)

CHASSIS PARTS LIST

Ref. No.	Parts Number	Description
11	* 131 2 3101 71100	Metal Mount (Front Panel)
12	* 131 2 3101 71300	Metal Mount (IC)
13	* 131 2 3101 71400	Metal Mount
14	* 131 2 3101 72000	Metal Mount (Phone)
15	* 131 2 3202 13500	Metal Reinforce
16	* 131 2 3305 29400	Panel Front
17	* 131 2 3306 31516	Panel Rear
18	131 2 4219 14000	Shaft (Push Switch)
19	131 2 6111 14200	Bushing (Line Cord)
20	131 2 6201 28101	Plate Heat Sink
21	131 2 7104 00500	Plate Pad Switch
22	131 2 4201 17800	Screw (GND)

ELECTRICAL PARTS LIST

Ref. No.	Parts Number	Description
25	4 2312 01020	Switch Slide
26	4 2312 04520	Switch Push Power
27	4 2352 00770	DIN Socket 5P
28	4 2432 00140	Power Cord
29	4 2512 13620	Power Transformer
30	4 5112 00510	Meter Assy
31	4 6129 20771	Meter Lamp 8 V, 300 mA (Right)
32	4 6129 20775	Meter Lamp 8 V, 300 mA (Left)
33	* 131 0 4001 05427	AF Amp P.C.B. Assy
34	* 131 0 4001 05431	Volume P.C.B. Assy
35	* 131 0 4001 05442	Headphone P.C.B. Assy
36	* 131 0 4001 05512	Secondary Fuse P.C.B. Assy
37	DWW-LN324GP	L.E.D. LN324GP (Green) (Function Ind.)
38	131 0 4006 24500	Cord Assy (Aux)
39	131 0 4006 24501	Cord Assy (Phono)
40	131 0 4006 24502	Cord Assy (Tuner)
C01,02	C2EHRM103A	Metallized Paper 0.01 μ F 250V $\pm$ 20%
R91,92	R2EDPJ334A	Carbon 330k 1/4W $\pm$ 5%

*—Not a service part.

PARTS LIST (Continued)

AF AMP P.C.B. Assy
131 0 4001 05427

Ref. No.	Parts Number	Description
VR01	4 2222 01840	VR 200k-Wx1 (Balance)
VR03,04	4 2222 01830	VR 100k-Cx2 (Bass, Treble)
L01,02	4 2532 00180	RF Filter
	4 2312 04220	Push Switch 1key (Loucon, Tape)
	4 2312 04510	Push Switch 2key (Speaker Selector)
	4 2312 04630	Push Switch 3key (Function)
	4 2312 04650	Rotary Switch (Mode)
	4 2322 00160	Relay
	4 2349 20580	Fuse T3.15 A (Protector)
	4 2352 00200	Fuse Clip
	4 2359 23180	Socket 4P (Tape)
	4 2359 23220	Socket 6P (Input)
	4 2372 00760	Speaker Terminal

CAPACITORS

C01,02	C1HCZK271BPA	Ceramic 270 pF 50V ±10%
C03,04	C1CRY-106APA	Electrolytic 10 µF 16V
C05,06	C1ARY-107APA	Electrolytic 100 µF 10V
C07,08	C1HFYK123APA	Mylar 0.012 µF 50V ±10%
C09,10	C1HFYK472APA	Mylar 0.0047 µF 50V ±10%
C11,12	C1HRY-104LPA	Electrolytic 0.1 µF 50V
C13,14	C1HCZK471BPA	Ceramic 470 pF 50V ±10%
C15,16	C1HFYK563APA	Mylar 0.056 µF 50V ±10%
C17,18	C1HRY105APA	Electrolytic 1 µF 50V
C19,20	C1ARY-107APA	Electrolytic 100 µF 10V
C23,24	C1HRY-105APA	Electrolytic 1 µF 50V
C27,28	C1HRY-105APA	Electrolytic 1 µF 50V
C29,30	C1HCZK271BPA	Ceramic 270 pF 50V ±10%
C31,32	C1HCZK4R7SPA	Ceramic 4.7 pF 50V ±10%
C33,34	C1HRY-476APA	Electrolytic 47 µF 50V
C35,36	C1ARY-107APA	Electrolytic 100 µF 10V
C37,38	C1CRY-106APA	Electrolytic 10 µF 16V
39,40		
C41,42	C1HFYK222APA	Mylar 0.0022 µF 50V ±10%
C43,44	C1HFYK273APA	Mylar 0.027 µF 50V ±10%
C45,46	C1HFRK224A	Mylar 0.22 µF 50V ±10%
C47,48	C1HFYK333APA	Mylar 0.033 µF 50V ±10%
C49,50	C1HYYZ473APA	Ceramic 0.047 µF 50V +80,-20%
C51,52	C1HFYK103APA	Mylar 0.01 µF 50V ±10%
C53	C1VRE-227A	Electrolytic 220 µF 35V
C54	C1ARY-227APA	Electrolytic 220 µF 10V
C55	4 2232 00430	Ceramic 0.01 µF x2 250V
C56	C1HRY-476APA	Electrolytic 47 µF 50V
C57,58	4 2232 00480	Electrolytic 4700 µF 35V
C59	4 2232 00430	Ceramic 0.01 µF x2 250V
C60,61	C1HRY-106APA	Electrolytic 10 µF 50V
C62	C1HYYZ473APA	Ceramic 0.047 µF 50V +80,-20%

Ref. No.	Parts Number	Description
		SEMICONDUCTORS
D01,02	DNN-RD15EB3	Diode, RD15EB3
D03	DDD-S2VB20	Bridge Diode, S2VB20
D04,05	DGG-1N4002	Diode, 1N4002 or DS-135
D06	205 5 9040 44210	Diode, DS-442
IC01,02	IJJ-NJM4558DX	IC, NJM4558DX
IC03	206 5 7340 46170	IC, Power STK461SA
IC04	ITT-TA7318P	IC, TA7318P
Q01	203 5 5000 53660	TR 2SC536 F, G
Q02	203 5 7252 27450	TR 2SC2274 E, F

RESISTORS

R01,02	R2EDZJ271APA	Carbon	270	1/4W	±5%
R03,04	R2EDZJ473APA	Carbon	47k	1/4W	±5%
R05,06	R2EDZJ331APA	Carbon	330	1/4W	±5%
R07,08	R2EDZJ224APA	Carbon	220k	1/4W	±5%
R09,10	R2EDZJ153APA	Carbon	15k	1/4W	±5%
R11,12	R2EDZJ104APA	Carbon	100k	1/4W	±5%
R13,14	R2EDZJ122APA	Carbon	1.2k	1/4W	±5%
R15,16	R2EDZJ272APA	Carbon	2.7k	1/4W	±5%
R17,18	R2EDZJ822APA	Carbon	8.2k	1/4W	±5%
R19,20	R2EDZJ102APA	Carbon	1k	1/4W	±5%
R21,22	R2EDZJ104APA	Carbon	100k	1/4W	±5%
R23,24	R2EDZJ473APA	Carbon	47k	1/4W	±5%
R25,26	R2EDZJ563APA	Carbon	56k	1/4W	±5%
R29,30	R2EDZJ222APA	Carbon	2.2k	1/4W	±5%
R31,32	R2EDZJ563APA	Carbon	56k	1/4W	±5%
R33,34	R2EDPJ102A	Carbon	1k	1/4W	±5%
R35,36	R2HXB332A	Oxide Metal Film	3.3k	1/2W	±5%
R37,38	R2EDZJ182APA	Carbon	1.8k	1/4W	±5%
R39,40	R2EDZJ563APA	Carbon	56k	1/4W	±5%
R41,42	R2EDZJ392APA	Carbon	3.9k	1/4W	±5%
R43,44	4 2212 00140	Metallized Paper	0.15	2W	
R45,46	R2EDZJ472APA	Carbon	4.7k	1/4W	±5%
R47,48	R2HXB100A	Oxide Metal Film	10	1/2W	±5%
49,50					
R51,52	R2EDZJ103APA	Carbon	10k	1/4W	±5%
R53,54	R2EDZJ823APA	Carbon	82k	1/4W	±5%
R55,56	R2EDZJ182APA	Carbon	1.8k	1/4W	±5%
R57,58	R2EDZJ561APA	Carbon	560	1/4W	±5%
R59,60	R2EDZJ122APA	Carbon	1.2k	1/4W	±5%
R61,62	R2EDZJ391APA	Carbon	390	1/4W	±5%
R63,64	R2EDZJ153APA	Carbon	15k	1/4W	±5%
R69,70	R3AXB222A	Oxide Metal Film	2.2k	1W	±5%
R71,72	R3AXB821A	Oxide Metal Film	820	1W	±5%
R73	R2HZPK101A	Fuse	100	1/2W	±10%
R74	R2EDZJ333APA	Carbon	33k	1/4W	±5%
R75	R2EDZJ124APA	Carbon	120k	1/4W	±5%
R76	R2HZPK560A	Fuse	56	1/2W	±10%
R77	R2HXB821A	Oxide Metal Film	820	1/2W	±5%

PARTS LIST (Continued)

VOLUME P.C.B. Assy
131 0 4001 05431

Ref. No.	Parts Number	Description
VR02	4 2222 01850	VR 100k-Bx2

HEADPHONE P.C.B. Assy
131 0 4001 05442

Ref. No.	Parts Number	Description
	4 2352 00190	Headphone Jack

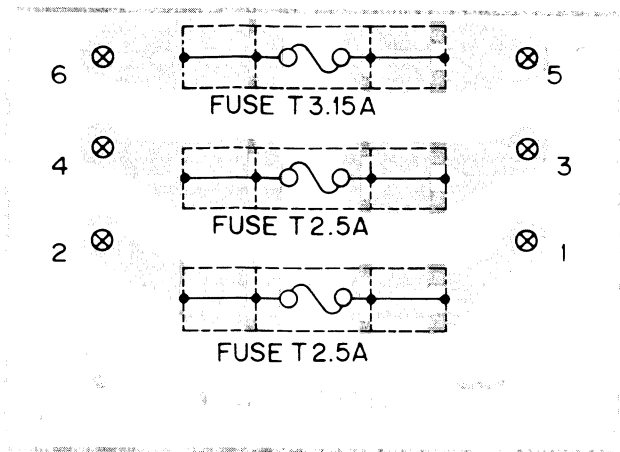
RESISTORS

R65,66	R3AXBJ331A	Oxide Metal Film 330 1W ±5%
R67,68	R2HXBJ221A	Oxide Metal Film 220 1/2W ±5%

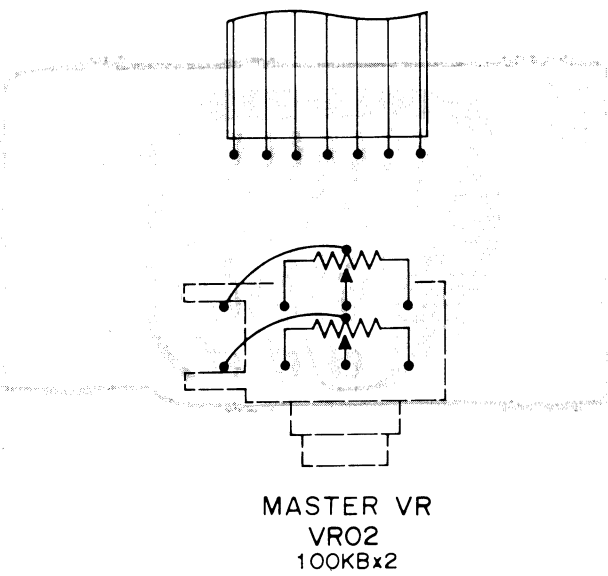
SECONDARY FUSE P.C.B. Assy
131 0 4001 05512

Ref. No.	Parts Number	Description
	4 2349 20570	Fuse T2.5 A
	4 2349 20580	Fuse T3.15 A
	4 2352 00200	Fuse Clip

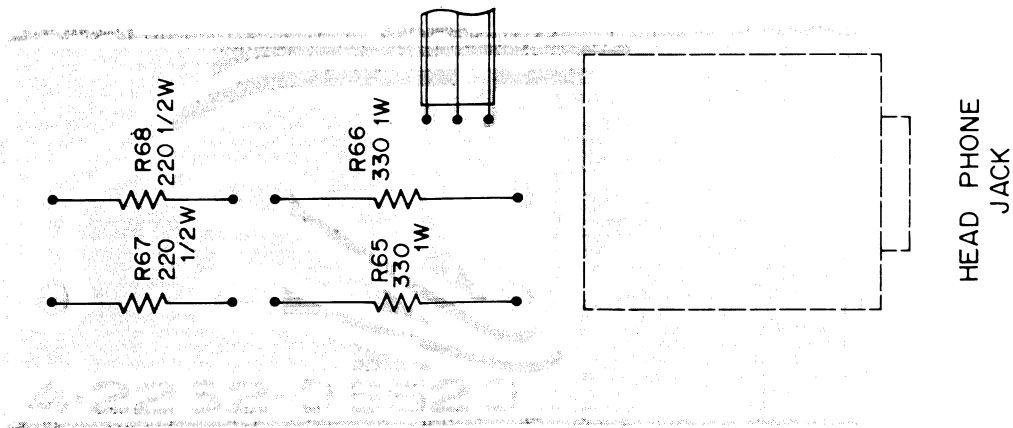
SECONDARY FUSE P.C.BOARD
(BOTTOM VIEW)



VOLUME P.C.BOARD
(BOTTOM VIEW)



HEADPHONE P.C.BOARD
(BOTTOM VIEW)



PARTS LIST (Continued)

VOLUME P.C.B. Assy
131 0 4001 05431

Ref. No.	Parts Number	Description
VR02	4 2222 01850	VR 100k-Bx2

HEADPHONE P.C.B. Assy
131 0 4001 05442

Ref. No.	Parts Number	Description
	4 2352 00190	Headphone Jack

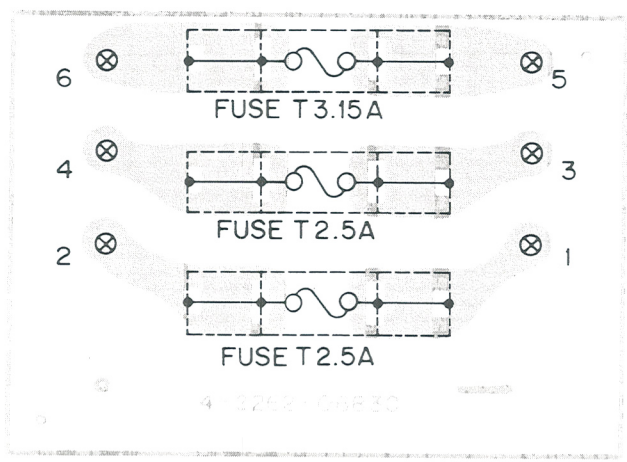
RESISTORS

R65,66	R3AXBJ331A	Oxide Metal Film 330 1W ±5%
R67,68	R2HXBJ221A	Oxide Metal Film 220 1/2W ±5%

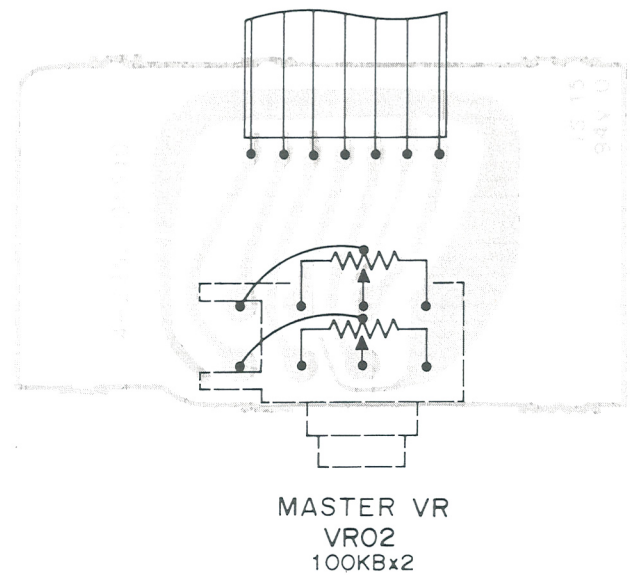
SECONDARY FUSE P.C.B. Assy
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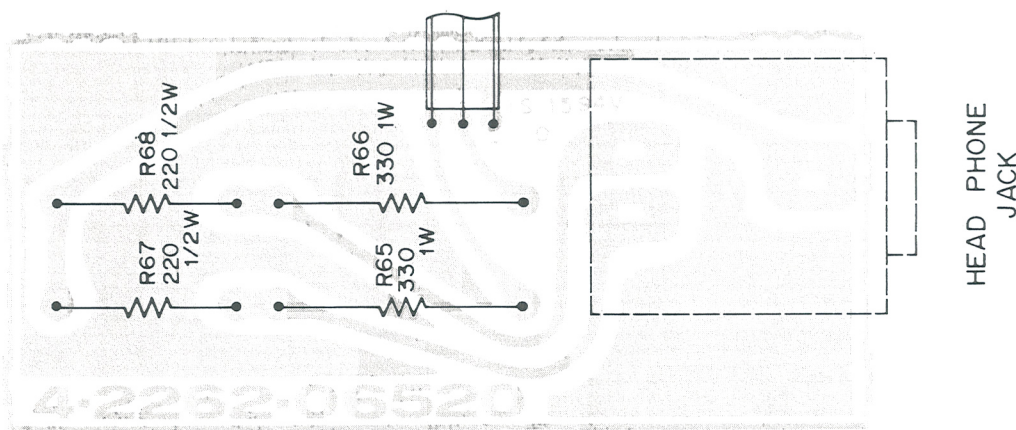
SECONDARY FUSE P.C.BOARD
(BOTTOM VIEW)



VOLUME P.C.BOARD
(BOTTOM VIEW)

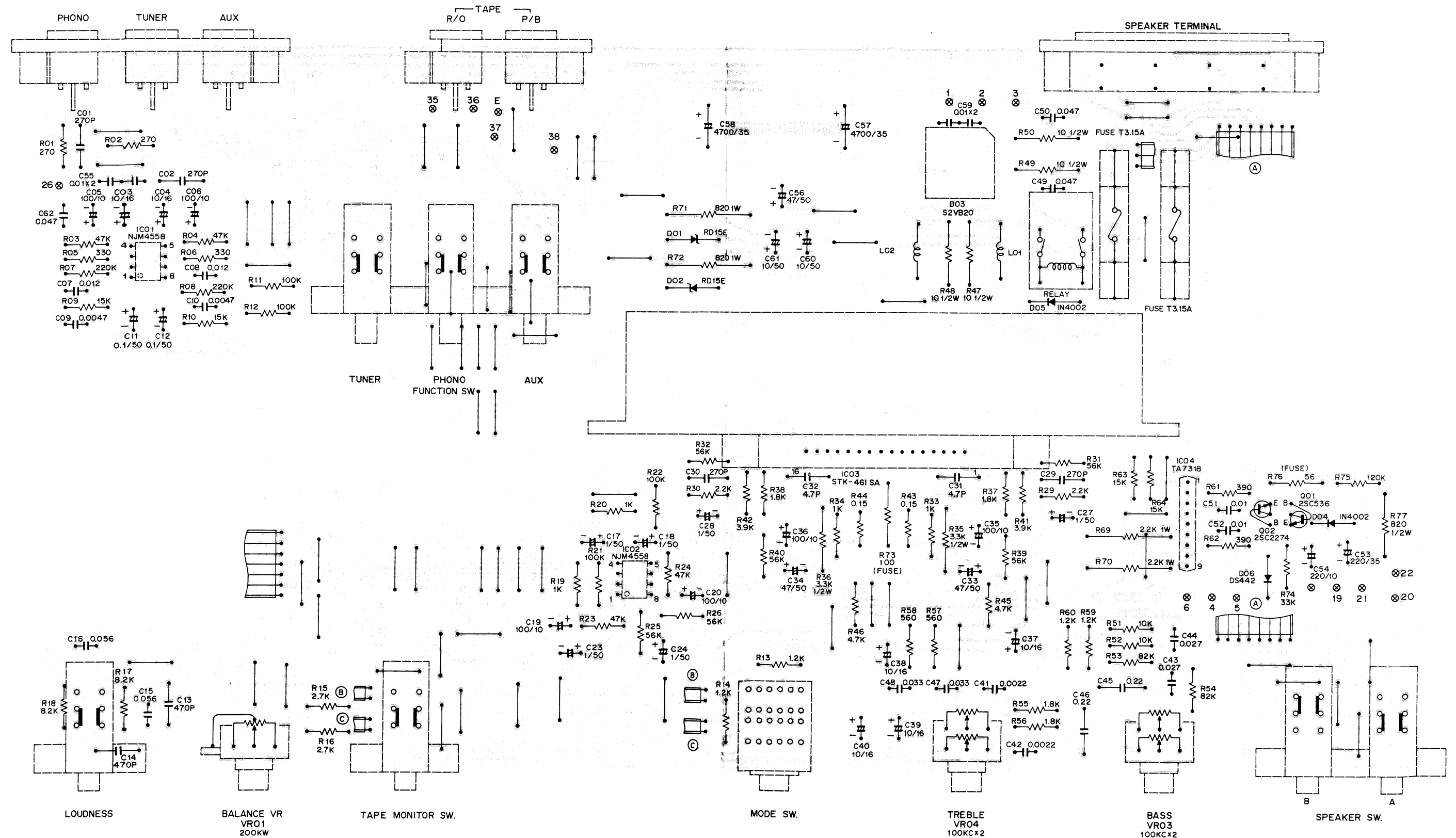


HEADPHONE P.C.BOARD
(BOTTOM VIEW)



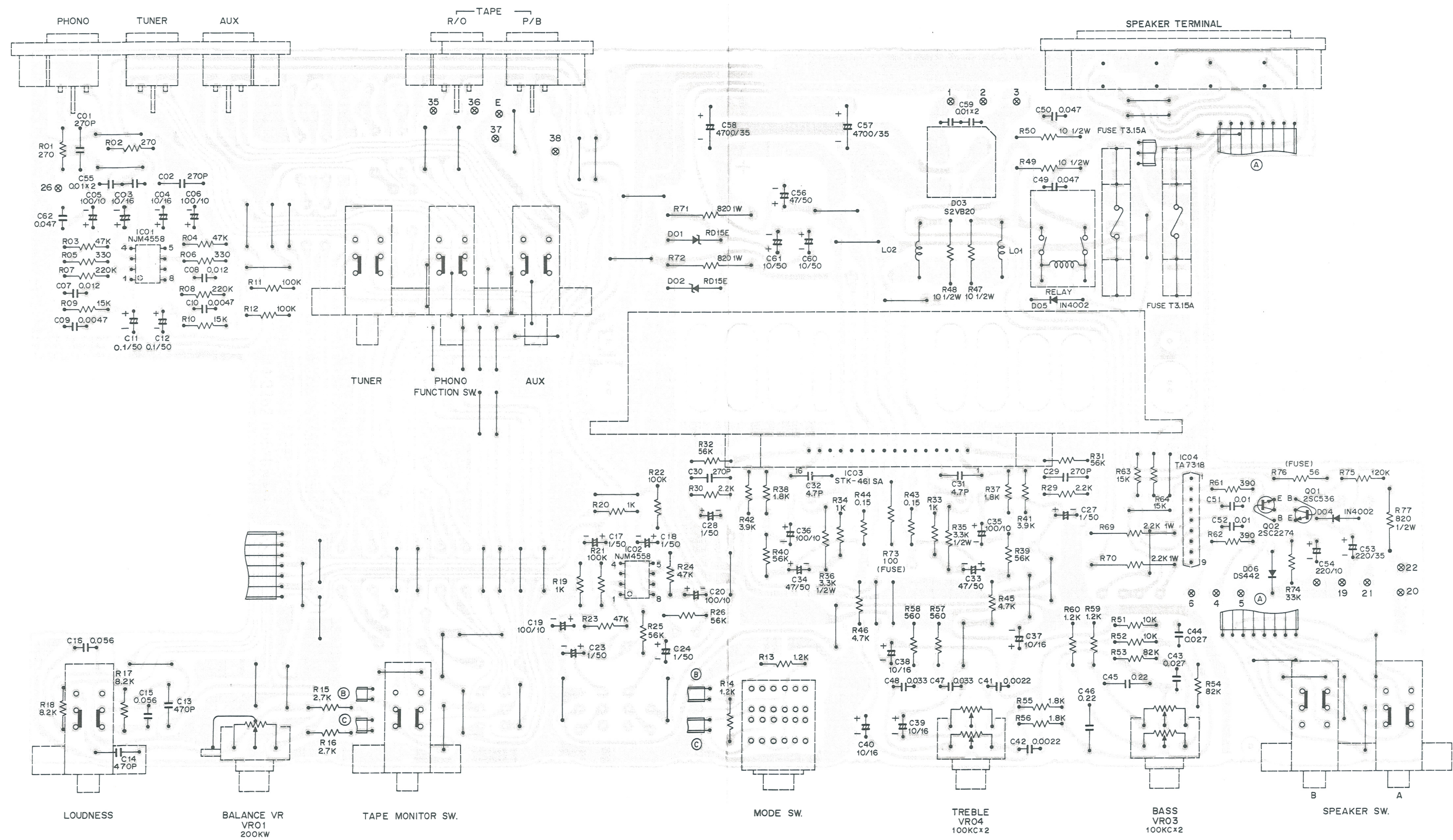
AUDIO FREQUENCY AMPLIFIER P.C.BOARD

(BOTTOM VIEW)

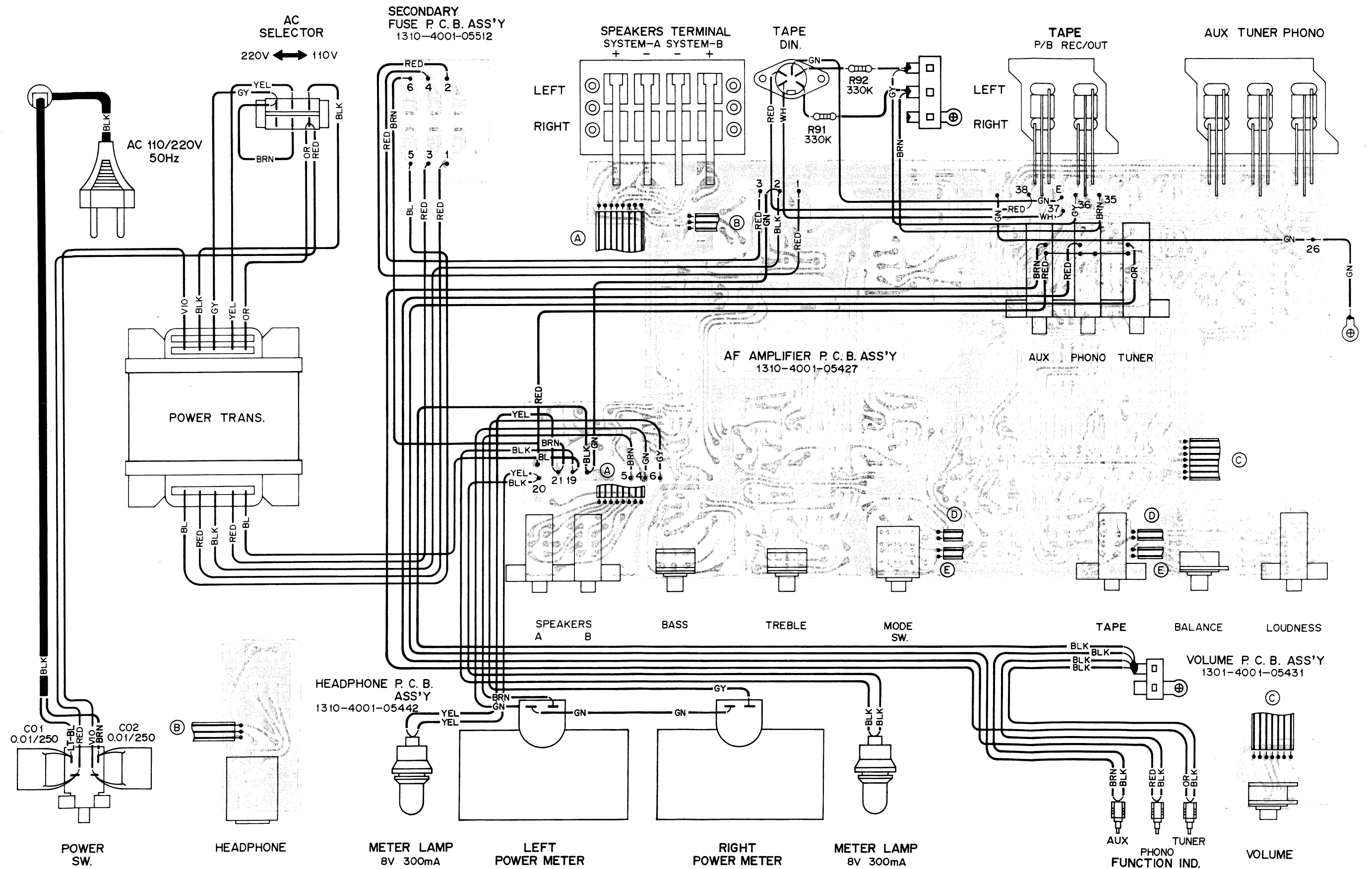


AUDIO FREQUENCY AMPLIFIER P.C.BOARD

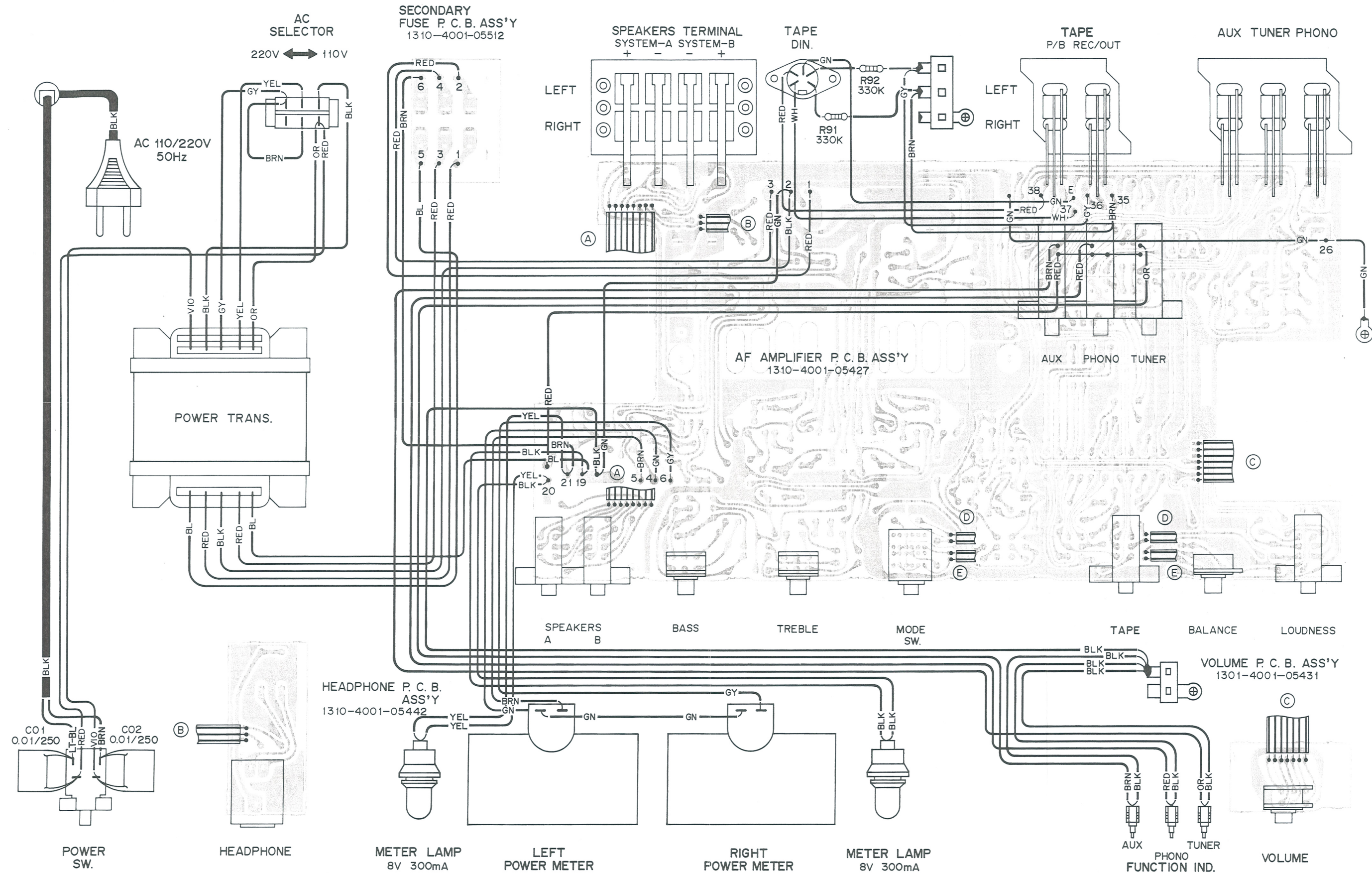
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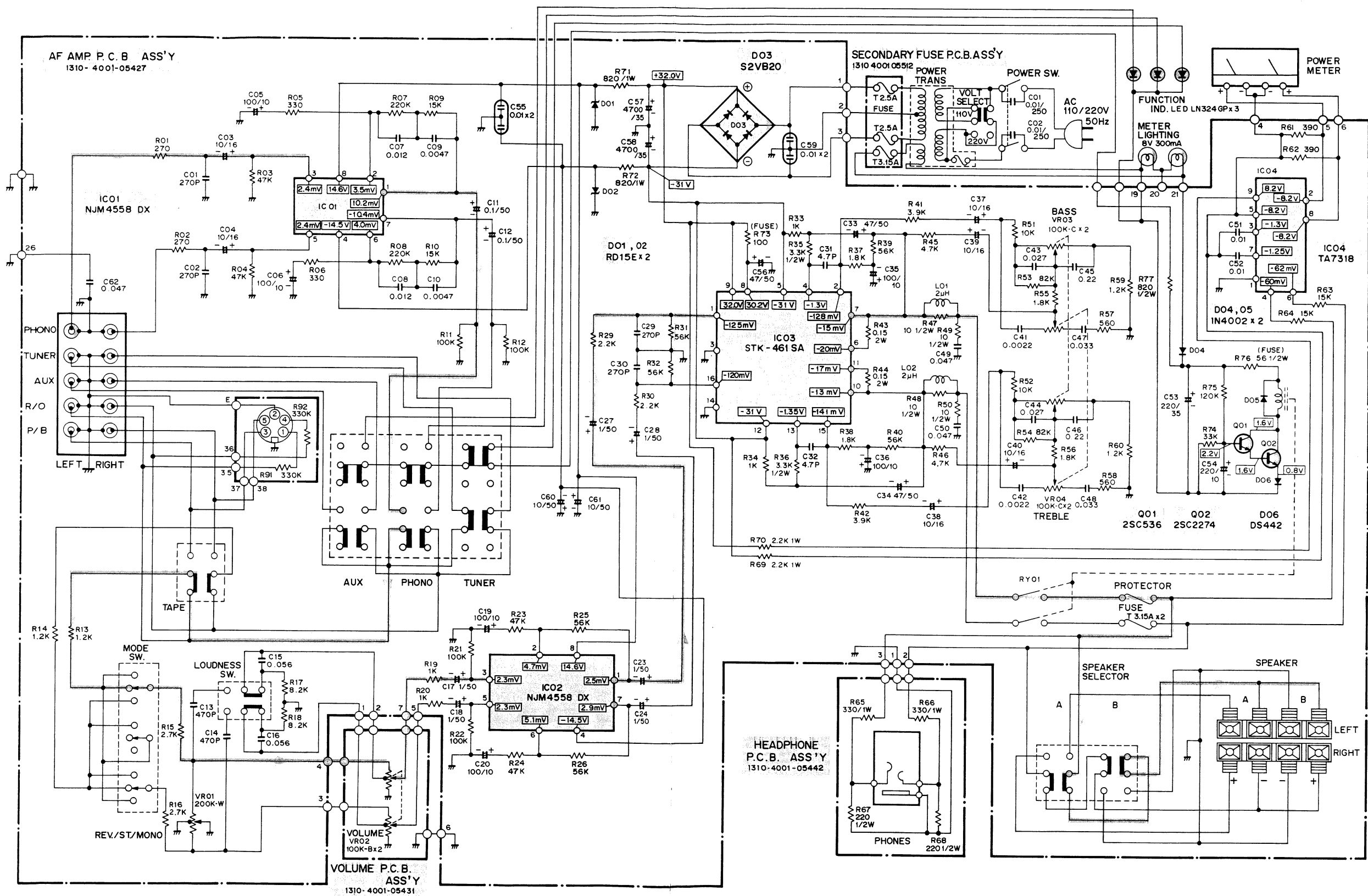
POINT TO POINT WIRING DIAGRAM



POINT TO POINT WIRING DIAGRAM



SCHEMATIC DIAGRAM



NOTES:

1. All resistors values are indicated in "ohm" ($K=10^3$, $M=10^6$).
2. All capacitors values are indicated in " μF " ($P=10^{-12}$).
3. All voltages indicated on the schematics are measured under the following conditions.
 - a. Use a V.T.V.M.

- a. All voltages $\pm 10\%$ with respect chassis ground
- b. No signals at input terminals
- c. AC input at 220 volts 50 Hz
- d. This is a fundamental schematics diagram. Some products may be modified without notice.